

EP '696 relates to a steel sheet used for drums. As frankly acknowledged by the Examiner, important elements (1) and (2), given below, of Claims 21 and 22 are not disclosed:

element (1): r value is 1.2 or more; and

element (2): inclusion of a martensite phase with an area ratio of 2% or more.

EP'696 seeks to achieve suitable properties applicable to drums. For example, workability is required to have an elongation value necessary for obtaining a cylindrical shape. On the other hand, Claims 21 and 22 concern raw material steel sheets for use in automobile structural parts in general. Quite a few of such parts have complicated shapes. The raw material steel sheets for producing the parts of complicated shapes by press forming to be used are required to have a high elongation value. In particular, for material sheets to be processed by "drawing", a high r value is required. In addition to this, the material sheets should simultaneously have strength sufficiently high to satisfy impact resistance and durability, besides formability.

It is important that elements (1) and (2) of Claims 21 and 22 are present to achieve both workability and high strength as mentioned above. When element (1) is not satisfied, there are problems during press forming by drawing, even if elongation exhibits a high value and thereby the property of "stretch forming" or "forming by bending" is excellent. On the other hand, when element (2) is not met, it becomes hard to obtain sufficient strength and thus, the effects on an automobile body upon collision become extremely severe or damage will ultimately be generated in an automobile body from driving for a long period of time. Particularly, as in the case of Claims 21 and 22 wherein a steel sheet is provided with a composite structure composed of ferrite and martensite, it is effective in terms of increasing ductility (an elongation value) with a the soft ferrite phase and securing strength with the hard martensite phase.

Further, for a steel sheet for use in producing drums as in the case of EP '696, possession of strength of a level which is required for materials for producing automotive structural parts is not obligatory. Also, because of low strength, it is easy to obtain a high elongation value. By reference to the inventive examples of EP '696, the tensile strength (TS) of a cold rolled steel sheet is 373-445 Map. In sharp contrast, the strength of the inventive examples relating to Claims 21 and 22 is 525-620 Map as shown in Tables 17 and 20. Those skilled in the art can readily glean from the respective inventive examples that the required strength each of the two invention are quite different. Consequently, the steel sheets of EP '696 can hardly be applied to structural parts of an automobile as is applicable in the case of the steel sheets of Claims 21 and 22. According to the subject matter of Claims 21 and 22, a further improvement in impact resistance is achieved by imparting a new and important property of increased TS through strain age hardening in the baking process after press forming, besides increasing, as mentioned above, the strength of the base steel sheet.

With respect to the manufacturing method, annealing after cold rolling is applied at only one time in EP '696 and no control is effected other than performed the control for raising the annealing temperature to a level which is higher than the recrystallization temperature. To achieve the above-mentioned property in the steels of Claims 21 and 22, annealing after cold rolling is effected two times and in the annealing process, not only the annealing temperature, but also the cooling rate after annealing are controlled and the necessary steel structure, grain size and the amount of solid soluted N are secured. That is to say, it can be assured that the manufacturing method of EP '696 will not result in the manufacture a steel sheet having the property of the steels of Claims 21 and 22.

Thus, the Applicants respectfully submit that the essence of the rejection is that the claimed martensite phase at an area ratio of 2% or more and the r value of 1.2 or more as recited by Claim 21 is

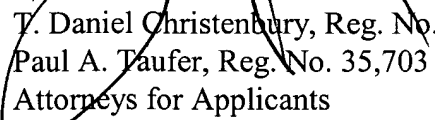
inherently present in the steels of EP '696. Such an "inherency" argument or position needs to demonstrate that the claimed characteristics are "necessarily" present in the prior art. The discussion above that demonstrates clear and important differences in the methodology in which the steels of Claims 21 and 22 are made versus the steels of EP '696 reveals that the physical characteristics of the steels of EP '696 are not "necessarily" present.

As noted above, there is a significant difference with respect to the fact that EP '696 has a single annealing after cold rolling. This is sharply contrasted to the two separate annealing steps after cold rolling which has an important effect on the characteristics of the resulting steel. Moreover, when taken with careful controlling of the cooling rate subsequent to such annealing, the steel structure, grain size and amount of solid soluted N are positively effected. This has significant effects on the physical characteristics of the resulting steels such as the martensite phase and the r value.

As a consequence, the Applicants have demonstrated by reference to significant differences in the methodologies that produce the steels of Claims 21 and 22 versus EP '696 that one of ordinary skill in the art would reasonably expect that the claimed physical characteristics, including the martensite phase and the r value, would "necessarily" be different from the physical characteristics from EP '696. This is important because the required showing under 35 U.S.C. §103 with respect to inherency is that the physical characteristics of EP '696 would "necessarily" be of the same. The Applicants have shown just the opposite, namely that the claimed physical characteristics would "necessarily" be different. As a consequence, the Applicants respectfully submit that the inherency position is not sustainable in this case and that EP '696 is inapplicable to Claims 21 and 22 under 35 U.S.C. §103. Withdrawal of the rejection is respectfully requested.

In light of the foregoing the Applicants respectfully submit that the entire application is now in condition for allowance, which is respectfully requested.

Respectfully submitted,



T. Daniel Christenbury, Reg. No. 31,750
Paul A. Taufer, Reg. No. 35,703
Attorneys for Applicants

TDC:vbm
(215) 656-3381